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RECORD OF ORAL HEARING

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex Parte NATHAN S. LEWIS, CAROL LEWIS, ROBERT GRUBBS, and
GREGORY ALLEN SOTZING

Appeal 2009-010154
Application 09/409,644
Technology Center 1700

Oral Hearing Held: December 10, 2009

Before EDWARD C. KIMLIN, CHARLES F. WARREN, and
MARK NAGUMO, *Administrative Patent Judges*.

ON BEHALF OF THE APPELLANT:

JOSEPH BAKER, ESQUIRE
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1 The above-entitled matter came on for hearing Thursday, December
2 10, 2009, commencing at 2:36 p.m., at the U.S. Patent and Trademark
3 Office, 600 Dulany Street, Alexandria, Virginia, before Todd Brown, a
4 Notary Public.

5 THE USHER: Good afternoon, Calendar No. 45, Mr. Baker.

6 MR. BAKER: Thank you.

7 THE USHER: You're welcome.

8 JUDGE KIMLIN: Good afternoon, Mr. Baker.

9 MR. BAKER: Hi. How are you?

10 JUDGE KIMLIN: Our transcriber today is Todd Brown.

11 MR. BAKER: I'm sorry?

12 JUDGE KIMLIN: Our transcriber today is Todd Brown. If you have
13 a business card for him, I'd appreciate it.

14 MR. BAKER: Um-hum. My name is Joseph Baker. I represent the
15 Appellant. I'm with the firm of Gavrilovich, Dodd and Lindsey. My Reg.
16 No. is 40,900.

17 Unless there's any particular questions to begin, I'll go ahead and start.
18 This case has been around for quite some time. It was filed as a
19 nonprovisional in October of 1999, so it's been pending for ten years. The
20 Notice of Appeal was filed back in 2004, and, as you know, the file history
21 is very long. It's gone up to final and gone back to first after interviews with
22 the Examiner on three occasions. Finally, we reached an impasse and the
23 Examiner Soderquist and I agreed that it was time to take it up on Appeal.
24 So we appreciate the Board hearing the case and spending your time on it.

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1 Really, this case comes down to an obviousness rejection. There's
2 two different criteria here that have been applied. There's the old teaching
3 suggestion motivation back in 2004, and now, we're under the new relaxed
4 standards under KSR. And even under the relaxed standards of KSR, the
5 obviousness rejection doesn't hold weight, for two reasons. Number one,
6 we're taking two different types of technology and pulling them together,
7 one being electrochemical sensors and the other one being conductor metric
8 sensors. They function --

9 JUDGE NAGUMO: If I could break in here, the main reference,
10 Gibson, is a conductimetric sensor.

11 MR. BAKER: Correct, correct.

12 JUDGE NAGUMO: As I understand, Gibson teaches -- it makes a
13 sensor with a couple of leads and a conductive polymer between them, and
14 there can be all kinds of geometries and -- electrodes, and why -- why would
15 it not have been obvious, with a reasonable expectation of success based on
16 Gibson, to take any conductive polymer, any polymer known to be
17 conductive, and apply it as the -- including that since as you can have lines
18 of polymers, why isn't that, with the other references, sufficient to make the
19 claims for prima facie obviousness anyway?

20 MR. BAKER: Well, Gibson actually does. It uses a polymer layer.
21 And there's been a question between the Examiner and I what blends
22 actually means. And when you read the specification of Gibson, it doesn't
23 really talk about what blends means. It talks about using co-polymers. But
24 when you read through and you review the co-polymers, they're really
25 discussing taking the monomeric units and putting them together.

26

1 And so --

2 JUDGE NAGUMO: Well, it says blends, also co-polymers and
3 blends of the above compounds, may be employed. This is at page 13, in the
4 first full paragraph. And the above compounds that he's talking about are
5 various conductive polymers.

6 The other thing is, though, your claim says alternating regions, and as
7 I read the specification, at first, I was saying okay, you know, alternating
8 regions, but it includes a conductive matrix of poly anions, I would say, and
9 little disbursed bits of carbon black in it, and that's considered to be an
10 alternating region, I think.

11 MR. BAKER: Correct.

12 JUDGE NAGUMO: So, and then the specification also says -- it talks
13 about what is a conductive region and it gets down to a single anion can be a
14 conductive region. And so, given that scope of what alternating regions can
15 be, why don't all of the references make this? I mean there's one that, a
16 couple -- the -- I think it's Naarmann and Sakaguchi, and I looked at them
17 first, and, you know, TCMQ, how's that a separate conductive region, and
18 then I read the spec, and I'm thinking, gee, maybe this wasn't such a weird
19 rejection after all. Why isn't it within the scope?

20 MR. BAKER: Well --

21 JUDGE NAGUMO: So if can you explain?

22 MR. BAKER: Okay. So there's a whole bunch of questions there.
23 We'll start with Gibson. Gibson teaches polymeric materials. In their
24 teaching of polymeric materials, number one, they don't include inorganics,
25 such as gold, silver, carbon black. It's purely polymer materials.

26

1 In fact, if you look at Moy, for example, you'll get, first of all -- I
2 think it's Moy and Breheret, I think I'm pronouncing that right, two
3 references that were cited by the Examiner. Those two references actually
4 teach a way for the use of polymer materials in conductimetric systems, so
5 you're not sensitive about --

6 JUDGE NAGUMO: Yeah, but those, those were applied only against
7 Casella. That was a secondary rejection. And it's really a primary one that I
8 think we really need to get our grips on first.

9 MR. BAKER: To get your grips on, okay.

10 JUDGE NAGUMO: So --

11 MR. BAKER: If we look at -- if we look at, for example, Claim 98,
12 which is the first independent claim under rejection, it actually includes
13 alternating regions of a first conductive material and a compositionally
14 different material. And the compositionally different material is selected
15 from a group of inorganics, for example, gold, silver, carbon black.

16 That mixture, actually, that combination of the different types of
17 regions that are in this material, the sensor region, actually provided benefits
18 that none of the other ones had. And, specifically, better sensitivity towards
19 volatile means, things that are found in bad food, rotten food, that having
20 been shown before.

21 JUDGE NAGUMO: Well, but that's a very limited showing if you're
22 going to unexpected results.

23 And the other thing I want to get into the mix here is that 98, and I
24 think one other independent claim, are limited to that inorganic list,
25 inorganic, carbon black, or mixtures of organic and inorganic. The others
26

1 are organic or inorganic and there are a couple of claims that just say
2 compositionally different. So, that argument, at best, applies to 98 and
3 maybe one other dependent claim -- independent claim.

4 And I really want to get back to this alternating regions business,
5 because that seems to take all of these rejections that the Examiner made,
6 that frankly look a little bit odd, especially if you're going to focus on
7 amperimetric versus conductimetric.

8 But all along, the Examiner is trying to say I've got equivalent
9 materials. What's equivalent to a conductive polymer? That's the material
10 that Gibson uses. All of these other things are known to be conductive
11 polymers. Go ahead and use them. Prima facie obvious.

12 MR. BAKER: Well, if we -- if we -- well, let's just, again, start with
13 the primary reference, Gibson. It doesn't teach the combination of the
14 composite materials of the inorganics and the polymeric materials. And the
15 Examiner has recognized that, and that's why he brings in the secondary
16 references, is to actually teach that, okay, there were materials that were
17 combinations of organic polymers and inorganics. However, in those
18 systems, those are all electrochemical systems.

19 JUDGE NAGUMO: But that's -- the rejection is, I take these
20 conductive organic polymers, they've got other stuff in them, I take that
21 material and I use that as the electrode material or the sensing material in
22 Gibson, and, says the Examiner, I'd have a reasonable expectation of
23 success, and I seem to meet your claims, or an awful lot of them.

24 MR. BAKER: And that's -- and I agree, that's what the Examiner has
25 done.

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1 JUDGE NAGUMO: Right.

2 MR. BAKER: And the point being is that when you take and you
3 look at the different types of sensors and how they're used, electrochemical
4 sensors are not meant to actually bind an analyte.

5 JUDGE NAGUMO: But that's not the Examiner's point, as I
6 understand it. Well, I mean, he made a lot of arguments about that, but he
7 also says, look, any conductive organic material -- any conductive organic
8 polymer would be expected to work as the conductive organic polymer in
9 Gibson. There are a bunch of them. Gibson doesn't have the inorganic
10 particles. I've got a bunch of references, too many, but I mean that's the way
11 it is. Metal particles. I've got carbon black in polymers. I've got doped
12 polymers. And then, why don't these actually meet the limitations of the
13 claim?

14 MR. BAKER: The reason that those particular materials were
15 selected in the electrochemical systems was because they're not meant to
16 bind to any analyte and change resistance. They're actually selected in those
17 systems because what they do is they conduct -- they take and they -- they're
18 in an electrolyte solution, and the electrons are meant to flow through them.
19 If they bind in those systems, they become poisoned and they cease to
20 function properly. So one would not go and say let's use the materials and
21 electrochemical sensors, and put them into resisto-metric, because the
22 electrochemical sensors are selected for the purpose that they don't bind to
23 analytes.

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1 So the Examiner has taken and said here's a material, but it functions
2 for a totally different reason and it's selected for a different reason than what
3 you would do -- select it for a conductive metric system.

4 JUDGE NAGUMO: But it -- don't the -- aren't the other polymers
5 in -- what's the name -- Casella, for example, that's an electro-conductive
6 polymer, isn't it? I mean it conducts electrons. That's what Gibson says.
7 Use an electronic-conducting polymer in my sensor.

8 MR. BAKER: A polymer --

9 JUDGE NAGUMO: But he -- Gibson may not have rushed out and
10 taken a conductive polymer with copper logs in it. But somebody of
11 ordinary skill in the arts, says the Examiner, reading Gibson and Casella,
12 would say well this conductive polymer would work in Gibson. I'd expect it
13 to work quite well because it's conducting.

14 MR. BAKER: But the purpose that it's in the electrical sampling
15 systems, and, for example, Casella, one of the references that's cited as a
16 secondary reference, says that this material is selected because it is inert.
17 And I use the term invisible because it's meant to be invisible. It's not meant
18 to react with the analytes in a system.

19 Whereas in the system that Dr. Lewis uses, that the Appellant uses, it's
20 meant to bind an analyte. It's meant to change the resistance. And the
21 reason that we have the difference, conductive materials, and
22 compositionally different conductive materials, because as the analytes bind,
23 they swell and they change. And you can measure that change across the
24 conductive leads.

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1 JUDGE NAGUMO: But would there not be a reasonable expectation
2 of successfully using any conductive polymer -- I mean that's sort of the
3 proposition, the one that works for the Examiner.

4 MR. BAKER: And, you know, and --

5 JUDGE NAGUMO: That it would work for Gibson --

6 MR. BAKER: A good example that would actually kind of
7 demonstrate that's not effective was if you look at glucose oxidase sensors,
8 which are electrochemical systems, where you put an enzyme on it, and it's
9 meant to actually be nonconductive. It's mean to actually convert the
10 presence of analyte to anion, so that it measures through the electrochemical
11 system, if you took that same material and you put it into a resistant metric
12 system, it wouldn't function. So, you can't just say that because it's an
13 electrochemical system, it would be expected to work in a resistant metric
14 system. It's --

15 JUDGE NAGUMO: But that isn't quite the rejection, as I understand
16 it.

17 MR. BAKER: Well, there's one other --

18 JUDGE NAGUMO: Gibson teaches conductive polymers, these
19 conductive polymers. There's a whole bunch of them.

20 MR. BAKER: Yeah, he teaches --

21 JUDGE NAGUMO: So, you'd sort of expect --

22 MR. BAKER: He teaches conductive polymers --

23 JUDGE NAGUMO: Would you not sort of expect any conductive
24 polymer to be functional, maybe not very well, but it would function as
25 some sort of a chemical sensor for vapors as taught by Gibson?

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1 MR. BAKER: And, and that is -- that is a good point that you made.
2 That it may not function that well.

3 And, in this particular case, the system that Dr. Lewis developed is
4 very sensitive to volatile amines. Something that would be unexpected.

5 JUDGE NAGUMO: Well, with the particulars embodiment --

6 MR. BAKER: I'm sorry?

7 JUDGE NAGUMO: -- I'd agree. The particular embodiment works
8 very well, a polyaniline, you know, doped with --

9 MR. BAKER: A polyaniline, polypyrrole -- they're sensitive to
10 particular types of materials.

11 JUDGE NAGUMO: But that's not the scope of Claim 98. There's
12 only one claim that has polyaniline, emeraldine, as the conductors.

13 MR. BAKER: Those particular --

14 JUDGE NAGUMO: Polymers.

15 MR. BAKER: And they're still -- those are still under rejection for the
16 same purposes as the independent claim is. Whereas it would be an obvious
17 variation, and the Examiner, you know, in doing his job, has -- we've come
18 to the impasse where we've brought it before you, and there's really, truly, an
19 unexpected result involved here.

20 JUDGE NAGUMO: All right. Is the unexpected result
21 commensurate in scope with Claim 98?

22 MR. BAKER: In Claim 98 -- so, he -- so, Dr. Lewis has shown that
23 there are polymers in combinations of inorganic materials, and, in fact,
24 we've amended the claims to eliminate semiconductive materials by the
25 language that's in the claim.

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1 And so we're -- we're actually talking about inorganic conductive
2 materials and conductive polymers. And those materials, in addition, since
3 the filing of the Application, he has developed more, and because it has been
4 up on appeal for so long, to submit additional Affidavit Declarations, which
5 is inappropriate, because then we'd have to take it out of appeal.

6 We actually have additional data that shows that these are effective.
7 So we're trying to get the scope that's really deserved by what the
8 Applicant's done. And, in this case, the Examiner has taken the plain
9 polymers and systems that are not really meant to bind analytes and
10 combined them.

11 In fact, even in KSR, they've said that if you actually take two
12 different things that were preexisting in the art, and you put them together,
13 and they function in a different way, that actually is a nonobvious invention.
14 It's something that actually moves technology forward and it should be
15 rewarded by a patent.

16 And that's what Dr. Lewis has done, is he's taken these materials, and
17 for the purposes of what they were originally done, where they were meant
18 to be invisible, and electrons were meant to flow and not bind analytes, he's
19 demonstrated that if you do take these and you put them in this wholly
20 different system that functions in a different way, you get these unexpected
21 results. You have a technology that can be used for tele-medicine. You
22 have -- it can be used for food processing. It can be used for things that
23 other sensors could not detect, these volatile remains, or other byproducts of
24 biological systems.

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1 JUDGE NAGUMO: The evidence of record is based on a couple of
2 conductive polymers with carbon black, and the unexpected sensitivity
3 appears to be with a means, and there's a statement, I think in the spec, that
4 sulfides and the like, would be -- or SH-containing materials might also be
5 expected to be especially sensitive here. But the response to things like
6 water and other common vapors appears to be about the same. So, how is
7 the evidence of unexpected results that's of record, because that's all we've
8 got --

9 MR. BAKER: Right.

10 JUDGE NAGUMO: -- commensurate in scope with Claim 98, for
11 example, -- or, let's see, what does it say -- Claim 127, which just requires a
12 different conductive material.

13 MR. BAKER: It's -- I think when you look at --

14 JUDGE NAGUMO: I mean they're huge -- these claims, most of
15 them are extremely broad as to all the materials involved.

16 MR. BAKER: And the --

17 JUDGE NAGUMO: And how is that -- is the art so predictable
18 that --

19 MR. BAKER: That you base --

20 JUDGE NAGUMO: -- based on the disclosure of the specification --

21 MR. BAKER: -- it on the material --

22 JUDGE NAGUMO: -- that we can extrapolate to the scope of the
23 claims, based on the few examples in the spec?

24 MR. BAKER: So, if we look at the specification, there is -- and I
25 believe it's Figure 7 and Figure 11-A -- demonstrate where there is this

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1 increased response to a means, where he has tested additional -- a means
2 against certain sensors, and then there's -- and I apologize -- there's another
3 particular analyte that's -- couldn't be detected quite as well in previous
4 systems that has a just magnitude better response in this system.

5 As I mentioned, Dr. Lewis has actually developed additional
6 combinations of polymers, using inorganics, where he has demonstrated that
7 they have the same properties. Those were not of record at the time, but
8 they can be made of record by declaration --

9 JUDGE NAGUMO: Well, they -- I mean I'm perfectly willing to
10 grant that this is a fabulous, fascinating area. But I've got a set of claims,
11 and I've got a disclosure, all of which seem to be very limited, compared to
12 the scope of the claims. And I'm not sure that we have conceded prima facie
13 obviousness, but since we're talking about unexpected results here, they've
14 got to be at least commensurate -- reasonably commensurate in scope with
15 the claims.

16 So you'd expect that they're reasonably -- for all possible -- well, large
17 regions of the claim would reasonably be expected to have these results.
18 And it seems like you at least need chemical reactions between your
19 conductive polymer and the analyte, or you're going to be especially
20 sensitive to it, otherwise, your results seem to be pretty much like what they
21 had before with nonconductive polymers and the, say the carbon black
22 dispersions. Really not very different for a detection of water vapor, carbon
23 tetrachloride, whatever.

24 MR. BAKER: Right. And, I think --
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1 JUDGE NAGUMO: So, again, we're not commensurate in scope, are
2 we?

3 MR. BAKER: For -- a couple of things, if we're talking about the
4 enablement with regard to the scope of the claims --

5 JUDGE NAGUMO: No. We're talking about -- I'm not talking about
6 enablement.

7 MR. BAKER: Okay.

8 JUDGE NAGUMO: I do want to make that clear. It's just are we
9 commensurate in scope? If we're talking about unexpected results --

10 MR. BAKER: Right.

11 JUDGE NAGUMO: -- are we reasonably commensurate in scope and
12 what's the evidence of that?

13 MR. BAKER: Based upon the evidence in the publications that
14 Dr. Lewis has now -- the record --

15 JUDGE NAGUMO: Of record, of record.

16 MR. BAKER: Right, and so --

17 JUDGE NAGUMO: Right. We can't look at those.

18 MR. BAKER: As, as you'll recognize, as technology has developed,
19 and particularly in this particular case, you file based upon what the inventor
20 has developed and what would be reasonable under the circumstances based
21 upon what the inventor considers would be useful.

22 And, at the time, in order to avoid people preempting your filings with
23 publications, or coming in and filing before you, you file with what you have
24 at the time, even though continued experiments are developing to

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1 demonstrate that there's additional polymers and additional combinations
2 that have that sensitivity.

3 And here, what I believe is happening is we're focusing on the specific
4 examples, even in view of a broader discloser, where we've demonstrated
5 that yes, there's additional polymers, there's the combinations of inorganics,
6 and there's a large number of polymers that are available. And we've
7 provided a description of a lot of those polymers in the specification.

8 And, as you're going through, as research develops, you go through
9 and you test those, and you can actually demonstrate that a large number of
10 them have those properties. But, at the time of filing, you file with what you
11 have at the moment. And the scope of what we're talking about is still -- and
12 they've still described, and it still has those purposes. And if I have the
13 opportunity, back when this was actually being brought up on appeal, after
14 numerous discussions with the Examiner, if that was the Examiner's
15 concern, we could have done additional experiments at that time and
16 provided a declaration.

17 And we actually did talk to the Examiner, three separate times by
18 teleconference, and the Examiner withdrew the finality. And we went
19 through prosecution again and withdrew the finality, and prosecution again,
20 and we thought we were moving things forward and explaining the
21 technology.

22 And it's before you, it's because we came to this impasse, where the
23 Examiner has, you know, in doing his job, basically rejected the claims upon
24 his beliefs, and there's data in there that shows these unexpected results that
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1 leads to certain polymers, and we could provide that with additional
2 polymers.

3 But that point came as -- our concern was, the prosecution was being
4 drawn out, the same references were being applied, and even in arguing that
5 Gibson doesn't teach the combination of the composites, and that when you
6 actually do look at combinations of composites, they're in a system that's not
7 meant to function that way; it's not meant to. Somebody of skill in the art
8 went and looked to materials that are meant to be invisible to analytes, to be
9 them in something that's not meant to be invisible to analytes.

10 And that's really the crux of what's happened in the prosecution, is
11 there's a combination of the Gibson with nonanalogous art, art that the
12 Examiner went to that somebody of skill in the art wouldn't look to because
13 of the invisibility of those materials to analytes, and combining those two
14 doesn't work.

15 In fact, Casella discusses the fact that if you actually take and you use
16 these composite materials on electrochemical sensors, they're actually very
17 stable and inert to the analytes, which is what they're meant to be.

18 And, in Dr. Lewis' invention, they're not meant to be inert to the
19 analytes. They're actually meant to bind. And it's that change, that swelling,
20 that change in the composition, where the composition of the material
21 changes to the analyte that makes it so that you can sense the presence of the
22 analyte.

23 And that's the crux. That's what's advanced in the technology. And if
24 you take, and you take these sensors, these particular sensors that are
25 sensitive to volatile means and other biological volatile analytes, and you put
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1 them in a system where you're combining it with inorganic materials and
2 nonconductive materials, nonconductive polymers, you get an electronic
3 nose that's able to sense a plurality of different analytes, provide a
4 fingerprint that you can then use to say this is what's in the system; this is
5 what's present. In fact, the technology is licensed to a startup. Some of it's
6 licensed to large companies that use it in airports. And this is important
7 technology to protect. And that's why we're here, is because it is the
8 combination of Gibson with these other secondary references that don't
9 really fit together. They weren't meant to fit together.

10 And, you know, there's, there's -- KSR points to it, where you can take
11 materials that are present, but if you put them together in a way that they
12 weren't meant to function, or they function totally differently, even under
13 KSR that's not obvious.

14 If you look at Wang, for example, which is a Federal Circuit case that
15 dates way back that was in the MPEP, they took different materials, where
16 one was a memory chip that was small, and the other one was a memory
17 chip that was large. They were semi-chips. And the Federal Circuit found
18 that they were nonanalogous, even though they were memory chips, because
19 they were meant for different purposes, one for large machines and one for
20 small personal computers. And even under those very, very, I would
21 consider, similar technologies, memory chips, their purpose, their function,
22 was totally different, and the court found that was not obvious.

23 So, even under the relaxed end of KSR, even in the previous standards
24 of the teaching suggestion motivation, this art is being combined so that it's
25 being changed in a way that it was not meant to function. And Dr. Lewis
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1 actually discovered that if you actually take these materials, they do bind
2 analytes. They do sense things. They have these unexpected results.
3 They're able to sense volatile amino acids, at volatile means.

4 And he's tested other polymers and we just have not had the
5 opportunity to provide the additional declarations, the affidavits, the
6 evidence, because the case has been up on appeal for so long. And we felt it
7 was important to attempt to resolve the combination of these references that
8 was being pulled together, to resolve this, and get it back where we can
9 actually do more prosecution, and actually, amend the claims if we need to.

10 And we've been very flexible and we've tried to move the case
11 forward with the Examiner. You know, this is a case that's important to the
12 parties of interest. It's important to the inventor. It's important to the
13 startups. It's important to the licensees. Because it's technology that's being
14 used. It's technology that's important and it's made advances in the sensor
15 systems. It's made advances in tele-medicine. It's something that wasn't
16 there before. And that's really what the patent system is there to protect, is
17 those advances that are important, that are unexpected, and that's why it's
18 there.

19 KSR probably states it very effectively, when they say that if you
20 move things forward, they function differently, and it provides a use, that
21 that's what the patent system is there to protect.

22 Gibson, as a primary reference, doesn't have the composites. It uses
23 polymers. Breheret and Moy teach away from using polymer materials
24 because they say they're not sensitive enough.

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1 The electrochemical arts, they're all the secondary references, talked
2 about those particular composites being inert and nonreactive. They
3 don't -- they are not meant to bind analytes, and suddenly, you're taking
4 those under the obviousness rejection that are not meant to bind analytes,
5 and you're putting it into a system that is meant to bind analytes, and that's
6 supposed to be an obvious thing that somebody would do.

7 But in the field that Dr. Lewis is in, electrochemical sensors are not
8 something that he looks at. He's a resistive chemistry kind of person. He
9 looks at the resistance. He's got -- he's had -- he has a number of patents that
10 have issued that relate to various composites, and there are sensitivities to
11 alcohols and different analytes. And that's really why this case is important.
12 It's a different sensor that's able to detect things better than what was there
13 before and it's important to protect those things.

14 JUDGE NAGUMO: And if we look at, say, pages 24 and 25 of the
15 Brief -- I think it's those pages -- page 25 talks about resistor composites of
16 plurality of alternating regions of different compositions and therefore
17 different conductivity transfers to the electrical path between the leads, and
18 it talks about you can have this color, or this suspension of the other
19 conductive material, and it says the gaps of different conductors arising from
20 the organic conductive material ranged at length from about 10 to 1,000
21 angstroms, usually on the order of 100 angstroms.

22 I'm trying to get at the scope of alternating regions of conductive and
23 nonconductive materials again. And then, there's other disclosure that talks
24 about -- let's see -- I think that's 28 to 29. It says, "The conducting region
25 can be anything that can carry electrons from atom to atom, including, but
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1 not limited to, a material, a particle, a metal, a polymer, and a substrate and
2 ion, an alloy and organic material," and it says et cetera.

3 MR. BAKER: Right.

4 JUDGE NAGUMO: With those definitions, that's tells why the
5 Naarmann and Sakaguchi references seem to have, you know, much greater
6 resonance for me, and in light of that disclosure, might not ordinarily think
7 of an anion being a different conductive region, but that's how the
8 specification defines it. So that informs how broad the claim is. It seems to
9 be on, say, polyaniline, doped with some, though modest amount, of a
10 doping agent, a doping anion that is conducted -- or whatever.

11 With that kind of scope, why does not the combination of something
12 like Naarmann or Sakaguchi, those conductive polymer materials, used as
13 polymer material in a sensor taught by Gibson, it seems to meet all of the
14 limitations, and it seems like you'd expect it to be a sensor. So it seems like
15 it would be prima facie obvious.

16 MR. BAKER: So --

17 JUDGE NAGUMO: That's really the problem that I'm trying to
18 wrestle with on the record that I've got in front of me on how I decide this
19 case.

20 MR. BAKER: Right. So let's back up to the alternating regions.
21 Now, we use that language in there because as you generate these, you can --
22 the idea is that you have -- and I'm going to use language that's kind of
23 relaxed to try and explain it -- but spots of the organic conductive polymer,
24 spots of the inorganic, and then spots of the other one. So that they're
25 alternating, not necessarily where they're purely alternating, like, for
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1 example, in Figure 1 that I provided in the original Brief, which was really
2 not meant to be limiting in that way. It was just kind of a diagram of how
3 the system works. But it can be alternating, meaning that they jump, I guess
4 could be another way to describe it. So that as electrons flow through this
5 system, from one conductive lead to the other conductive lead, they travel.
6 And if an analyte binds -- if an analyte binds and causes this -- causes areas
7 to swell, regions to swell, which changes the conductivity across the system,
8 and it's those regions, those alternating regions, and how much alternating
9 there is, that changes the resistance, how they swell.

10 If they were just, for example, a polymeric material, just one, solid
11 polymeric material and one solid inorganic conductor, you wouldn't get the
12 same amount of change in the system as you would if you have smaller
13 regions of the particular angstrom size that's discussed in the application,
14 where you can get that change in resistance that's more effective.

15 So when we're talking about alternating regions, they can be stacked,
16 they could be, so long as they alternate sufficiently enough and that gap is
17 sufficient enough so you can change the resistance. Or they can be spotted.
18 Spot is probably not quite the right word and if I could diagram it, it might
19 be better. But it causes the electrons to jump. And if an analyte binds and
20 swells, it causes it to jump further, which changes the resistance, is maybe a
21 good way to describe it.

22 When we're looking at Sakaguchi, and when we're looking at some of
23 the other references, they discuss composites, but they don't use them in
24 sensor systems. One of them uses it, I believe, in an energy source --
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1 JUDGE NAGUMO: If they did, we would have an anticipation, oh
2 there's something very, very close to it. But we've got rejections that seem
3 to say, look, take these conductive polymers, put them into the sensor taught
4 by Gibson, use these other conductive polymers, blended with whatever, and
5 I can keep getting a sense of --

6 JUDGE KIMLIN: Maybe we could wrap this up. We're considerably
7 over the time frame.

8 JUDGE NAGUMO: We seem to be. If you -- I can quit.

9 MR. BAKER: And I guess, in wrapping it up, it is to the Inventor, it's
10 to Dr. Lewis, and to the Appellants that -- it's the combination. Gibson
11 teaches a polymeric material. The other references that have been cited by
12 the Examiner, even though they were cited in dependent claims, if you look
13 at the references and the teachings as a whole that are being applied to the
14 case, those are the references that actually teach away from using polymeric
15 materials. So they would teach away from using Gibson as a primary
16 reference.

17 The electrochemical systems function for a totally different purpose.
18 They're meant to be invisible and they're not meant to bind analytes. And
19 so, somebody of skill in the art that wants to develop a sense of that binds
20 and alloys and changes resistance, wouldn't look to an electrochemical
21 system that is not meant to bind.

22 And that is the fundamental difference, is we're taking materials and
23 putting them in the system so that they function different, provide
24 unexpected results and benefits. And KSR recognizes that, the previous
25 standard that was applied by the USPTO and by the Federal Circuit would
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1 take that into account as being these function differently. They function --
2 they wouldn't be combined. Somebody of skill in the art wouldn't pick
3 something that's meant to be inert and put it into something that's not meant
4 to be inert.

5 And that even if, even if that happened, we still have the unexpected
6 results, whether you have the increased sensitivity to these volatile means.
7 That wasn't shown by any other references. That wasn't known in the art at
8 the time. And those unexpected properties actually do provide a benefit to
9 society and should be protected. And that's really where the Appellants are.

10 And you had mentioned about the scope of the claims, the scope of
11 the polymers. Dr. Lewis has done further experiments. He's tested
12 additional polymers and he's shown that they do have these sensitivities.
13 And the opportunity to present those things had passed by the time it went
14 up on appeal and we couldn't provide the declaration, the affidavits, the
15 additional evidence, but we'd be happy to do that. It's just we needed to
16 move the case forward. The Examiner and I were at an impasse, and we
17 were cooperating, and he's been very, very helpful in moving the case up to
18 the Board and with some of the formalities that have happened.

19 In the end, you know, we appreciate your time. We know it's a thick
20 case. We know it was a lot of reading. There's a lot involved in it, a lot of
21 references, and, you know, we hope that we'll have the opportunity to clarify
22 anything else with the Examiner that might need to be clarified and we hope
23 that, you know, the Appeal will be of benefit to the Appellants and that we
24 can actually move the technology forward.

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1 JUDGE KIMLIN: We'll consider it, study and review it, and we
2 thank you for coming.

3 MR. BAKER: Thank you.

4 Whereupon, the proceedings, at 3:14 p.m., were concluded.

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